

# ***Bacopa monnieri***

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***Bacopa monnieri*****Scientific classification**

Kingdom: Plantae  
(unranked): Angiosperms  
(unranked): Eudicots  
(unranked): Asterids  
Order: Lamiales  
Family: *Scrophulariaceae*  
Genus: *Bacopa*  
Species: ***B. monnieri***

**Binomial name*****Bacopa monnieri***L. Pennell<sup>[1]</sup>**Synonyms***Bacopa monniera**Bramia monnieri* (L.) Pennell*Gratiola monniera* L.*Herpestes monniera* (L.) Kunth*Herpestis fauriei* H.Lev.*Herpestis monniera**Herpestris monniera**Lysimachia monnieri* L.*Moniera euneifolia*

***Bacopa monnieri*** (**Coastal Waterhyssop**, **Brahmi**, **Thyme-leaved gratiola**, **Water hyssop**) is a perennial, creeping herb whose habitat includes wetlands and muddy shores. *Brahmi* is also the name given to *Centella asiatica* by some botanists,<sup>[2][3]</sup> while others consider that to be a mistake that arose during the 16th century, when *brahmi* was confused with *mandukaparni*, a name for *C. asiatica*.<sup>[4]</sup>



Brahmi herb at Talktora Gardens

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## Description



*Bacopa monnieri* in Hyderabad, India.

The leaves of this plant are succulent and relatively thick. Leaves are oblanceolate and are arranged oppositely on the stem. The flowers are small and white, with four or five petals. Its ability to grow in water makes it a popular aquarium plant. It can even grow in slightly brackish conditions. Propagation is often achieved through cuttings.

## Ecology

It commonly grows in marshy areas throughout India, Nepal, Sri Lanka, China, Taiwan, and Vietnam, and is also found in Florida and other southern states of the USA where it can be grown in damp conditions by the pond or bog garden.

## Uses

### Medicine

This plant has a number of uses in Ayurveda. It is a traditional treatment for epilepsy and asthma.<sup>[5]</sup> It has antioxidant properties, reducing oxidation of fats in the bloodstream.<sup>[5]</sup> However, anti-epilepsy properties seem to be in very high toxic and near lethal doses, so it's only used—at much lower non-toxic dosage—as a (cognitive) additive to regular epilepsy medication. Studies in humans show that an extract of the plant has

antianxiety effects.<sup>[5]</sup>

It is listed as a nootropic, a drug that enhances cognitive ability. In India, this plant has also been used traditionally to consecrate newborn babies in the belief that it will open the gateway of intelligence. Laboratory studies on rats indicate that extracts of the plant improve memory capacity and motor learning ability.<sup>[5]</sup> Recent studies suggest bacopa may improve intellectual activity.<sup>[6][7][8]</sup> The sulfhydryl and polyphenol components of *Bacopa monniera* extract have also been shown to impact the oxidative stress cascade by scavenging reactive oxygen species, inhibiting lipoxygenase activity and reducing divalent metals.<sup>[9]</sup> This mechanism of action may explain the effect of *Bacopa monniera* extract in reducing beta-amyloid deposits in mice with Alzheimer's disease.<sup>[9]</sup>

It is used in Rebirthing therapy to accelerate trauma release and make continuous breathing easier. Bacopa monnieri is a well known nootropic plant reported for its tranquilizing, sedative, cognitive enhancing, hepatoprotective and antioxidant action.(ref name: m mujassam)

## Safety

A standardized *Bacopa monniera* preparation was evaluated for safety and tolerability in 23 healthy adult volunteers.<sup>[10]</sup> Participants took 300 mg of the extract daily for 15 days, followed by 450 mg/daily for the subsequent 15 days. No adverse effects were observed in biochemical, electrocardiographic, hematological or clinical parameters in the post-treatment vs. the pre-treatment period. There were some reports of mild gastrointestinal symptoms that resolved spontaneously.

## Interactions

*Bacopa Monnieri* might agonize (strengthen) cytochrome p450 liver isoenzymes "7-pentoxoresorufin O-dealkylase" (CYP2B1/2?) and "7-ethoxyresorufin O-deethylation" (CYP1A1), especially under stressful conditions<sup>[11]</sup>.

## Kitchen

It is used in Vietnamese cuisine, where it is called *rau đắng biển*. It is used in *cháo cá*, a variety of rice congee made with fish and *nấm tràm* mushrooms.

## Phytoremediation

*Bacopa monnieri* is a known hyperaccumulator of Cadmium, Chromium, Lead and Mercury, and as such can be used for phytoremediation.<sup>[12][13]</sup>

## International naming

- நீர்ப்பிரமி (*Niirpirami*) in Tamil
- ผักมิ Phak mi, พรหมมิ Phrommi in Thai

## References

- ↑ "Bacopa monnieri information from NPGS/GRIN" (<http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?102292>).

www.ars-grin.gov. <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?102292>. Retrieved 2008-03-13.

2. ^ "In north India, however, *brāhmī* is commonly identified as *Centella asiatica* (Linn.) Urban, which in Malayalam is known as *muttil*. It seems that this identification of *brāhmī* as *C. asiatica* has been in use for long in northern India, as Hēmādri's 'Commentary on Aṣṭāṅgharḍayaṃ (Āyurvēdaraśāyanaṃ) treats *maṇḍūkapaṇṇī* (*C. asiatica*) as a synonym of brahmi." Warriar, P K; V P K Nambiar, C Ramankutty, V.P.K. & Ramankutty, R Vasudevan Nair (1996). *Indian Medicinal Plants: A Compendium of 500 Specie* (<http://books.google.com/books?id=GkBRXzpqD98C&pg=PA238>) . Orient Blackswan. pp. 238. ISBN 9788125003014. <http://books.google.com/books?id=GkBRXzpqD98C&pg=PA238>.
3. ^ Daniel, M. (2005). *Medicinal plants: chemistry and properties* (<http://books.google.com/books?id=5sU6yo1jFxC&pg=PA225>) . Science Publishers. pp. 225. ISBN 9781578083954. <http://books.google.com/books?id=5sU6yo1jFxC&pg=PA225>.
4. ^ Khare, C. P. (2003). *Indian Herbal Remedies: Rational Western Therapy, Ayurvedic, and Other Traditional Usage, Botany* (<http://books.google.com/books?id=463ERB3VeUoC&pg=PA89>) . Springer. pp. 89. ISBN 9783540010265. <http://books.google.com/books?id=463ERB3VeUoC&pg=PA89>.
5. ^ <sup>a</sup> <sup>b</sup> <sup>c</sup> <sup>d</sup> Rajani, M., et al. "Brahmi (*Bacopa monnieri* (L.) Pennell) - A *Medhya Rasaayana* Drug of Ayurveda" in Ramawat, K. G., Ed. (2004). *Biotechnology of Medicinal Plants: Vitalizer and Therapeutic* Enfield, New Hampshire: Science Publishers, Inc.
6. ^ C. Stough, J. Lloyd, J. Clarke, L. Downey, C. Hutchison, T. Rodgers, P. Nathan (2001). "The chronic effects of an extract of *Bacopa monnieri* (Brahmi) on cognitive function in healthy human subjects". *Psychopharmacology (Berl)* **156** (4): 481–4. PMID 11498727 (<http://www.ncbi.nlm.nih.gov/pubmed/11498727>) .
7. ^ S. Roodenrys, D. Booth, S. Bulzomi, A. Phipps, C. Micallef, J. Smoker (2002). "Chronic effects of Brahmi (*Bacopa monnieri*) on human memory". *Neuropsychopharmacology (Wollongong)* **27** (2): 279. doi:10.1016/S0893-133X(01)00419-5 (<http://dx.doi.org/10.1016%2FS0893-133X%2801%2900419-5>) . PMID 12093601 (<http://www.ncbi.nlm.nih.gov/pubmed/12093601>) .
8. ^ Stough C, Downey LA, Lloyd J et al. (2008). "Examining the nootropic effects of a special extract of *Bacopa Monnieri* on human cognitive functioning: 90 day double-blind placebo-controlled randomized trial." *Phytother Res.* **22**:1629-1634.
9. ^ <sup>a</sup> <sup>b</sup> Dhanasekaran M, Tharakan B, Holcomb LA et al. (2007). "Neuroprotective mechanisms of ayurvedic antidementia botanical *Bacopa monnieri*." *Phytother Res.* **21**:965-969.
10. ^ Pravina K, Ravindra KR, Goudar KS et al. (2007). Safety evaluation of BacoMind in healthy volunteers: a phase I study." *Phytomedicine.* **14**:301-308.
11. ^ Antistress effects of bacosides of *Bacopa monnieri*: modulation of Hsp70 expression, superoxide dismutase and cytochrome P450 activity in rat brain. <http://www.ncbi.nlm.nih.gov/pubmed/12410544>
12. ^ McCutcheon & Schnoor 2003, *Phytoremediation*. New Jersey, John Wiley & Sons, page 898.
13. ^ Gurta *et al.* 1994

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## External links

- *Bacopa monnieri* List of Chemicals (Dr. Duke's Databases) (<http://sun.ars-grin.gov:8080/npgspub/xsql/duke/plantdisp.xsql?taxon=2229>)
- Brahmi (*Bacopa monnieri*) (<http://www.hort.purdue.edu/newcrop/CropFactSheets/bramhi.html>) By Pankaj Oudhia
- Bacopa (<http://content.nhiondemand.com/psv/monoAll-style.asp?objID=100165&ctype=ds&mtyp=1>) by Pharmasave. Includes a number of medical references.

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